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Model No. 4040CL-BVW (& 4040CL-BVW-T)

300 CLIP FAST ACCESS SYSTEM

WITH

BVW Protocol
FOR PROFILE VIDEO SERVERS ONLY

USER MANUAL

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1. REVISION HISTORY

042803	Rev. 1.1	Added “For Profile Video Servers Only” on cover.
100903	Rev. 1.2	Company header information revised.
112503	Rev. 1.3	Added DNF Controls Limited Warranty.
073004	Rev. 1.4	Revised GPI IN/OUT CONNECTOR
052606	Rev. 1.41	Updated dimensions for T-bar and Non T-bar housings. Added screen shots.
110606	Rev. 1.42	Corrected clip capacity.

Getting Started . . .

2. SYSTEM DESCRIPTION

The 4040CL system includes DNF's most robust controller, the ST400, with Cliplist software. The ST400 controls up to 6 video channels individually or ganged. It features full transport functionality.

The 4040CL provides fast access to fill clip and key clip combinations with the press of one key.

The 4040CL-BVW supports BVW protocol and requires that the Profile has BVW Panel selected.

The 4040CL provides fast access to existing video clips stored in the Grass Valley Group PROFILE.

DEFINITIONS

- Throughout this document, GVG Profile will be referred to as "Video Server."
- Words surrounded by brackets, for example, [**ENTER**], are keys on the ST400. [**XXX**] + [**XXX**] means hold the two keys down simultaneously.
- The 6 keys directly below the display are referred to as "Softkeys." Their function changes as indicated on the last line of the display.

3. SYSTEM INSTALLATION

ST400-S/SM, VTR/DDR CONTROLLER

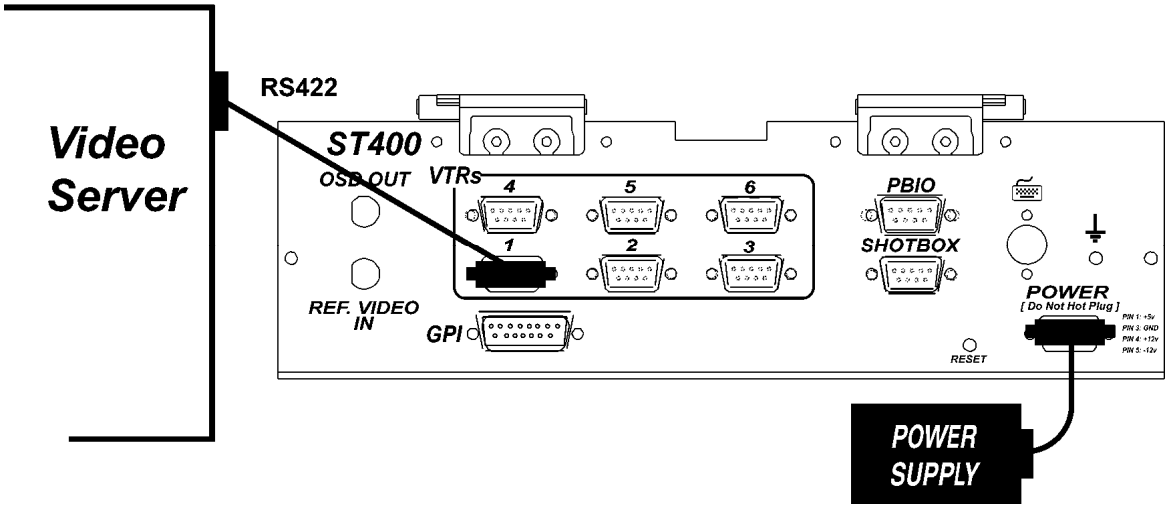
a. Plug one end of a 9-conductor, RS422 serial cable into the VTR1 (VTR2, VTR3, VTR4, VTR5 or VTR6) connector on the rear of the ST400. Plug the other end of the cable into the 9-pin REMOTE connector on the Video Server.

b. Connect the supplied POWER SUPPLY, APX#4108, into the POWER connector on the rear of the ST400. Plug the Power Supply into an outlet, 90 VAC - 240 VAC.

c. Check SETUP MENU prior to using the ST400 to confirm proper Record mode and other User settable modes.

Installation is complete.

CONNECTION DIAGRAM



4. VIDEO SERVER SETUP

a. Select BVW communications protocol on the VIDEO SERVER to be controlled.

b. Assign a serial port on the VIDEO SERVER through which the ST400 will control it.

Setup is complete

1. LOAD A CLIP

a. Select a VTR by pressing VTR [**1**], [**2**], [**3**], [**4**], [**5**] or [**6**].

b. Press [**CLIP LIST**] to view the list of CLIP IDs that are resident on the Video Server. The CLIP LIST indicator will turn on.

c. Press [**CREATE**] to create and load a new clip.
(Creating a clip is described in the CREATING A CLIP section.)
OR

Turn the Wheel to view the existing CLIP IDs on the video server.

Turn the Wheel clockwise to scroll forward, or counter-clockwise to scroll backward, through the list of available CLIPs. Backward scrolling is limited to the last 3 screens of CLIP IDs viewed.
OR

Manually enter a CLIP ID using the ST400 numeric keypad, or PC keyboard.

d. Press [**LOAD**] to load the entered CLIP ID for playout.

e. Repeat steps a. thru d. to load clips on desired VTRs.

f. Set the Gang Mode, if required. See "GANG SETUP" in "**FUNCTION TABLE**," Section 15.

2. LEARN A CLIP OR CLIP COMBINATION

a. Press VTR [**1**], [**2**], [**3**], [**4**], [**5**] or [**6**].

b. Load a clip on the selected channel. See section LOAD A CLIP.

c. Use the transport functions to view the clip.

Press [**IN**] to mark an IN point. The IN LED will turn on. On recall, the clip will cue to the IN time, not the beginning of the clip.

Optional- Press [**OUT**] to mark an OUT point. The OUT LED will turn on.
On recall, the clip will play to the OUT point then stop.

To delete an IN or OUT point, press and hold [**DEL**], then press [**IN**] or [**OUT**]. The IN/OUT LED will turn off.

If no IN point is marked, the current location of the clip will be learned as the IN point.

d. For GANGs, repeat steps a., b., and c. for each channel. Then, press the [**GANG**] softkey.

Press VTR [**1**], [**2**], [**3**], [**4**], [**5**] or [**6**] to add the VTR to the GANG. The VTR LED will turn on.

Press the VTR key again to remove it from the gang. The VTR LED will turn off.

Press [**ESC**] to exit GANG mode. The LED of all GANGed VTRs will turn on.

e. Select the desired Cue Point by pressing [**NEXT CUE**], [**LAST CUE**] or by manually entering the Cue Point using the numeric keypad, followed by [**ENTER**].

The selected Cue Point number is shown on the bottom part of the display.

f. Press [**SHIFT**] + [**LEARN**] to initiate the Learn.
The display will show: “Select VTRs to learn:--------”

g. Select the VTRs to be learned by pressing VTR keys [**1**], [**2**], [**3**], [**4**], [**5**], and/or [**6**].

h. Press [**LEARN**] to complete the Learn process.
NOTE: Learn will overwrite the previous contents of the Cue Point.

Press [**ESC**] at anytime to escape without LEARNing.

3. RECALL A CLIP OR CLIP COMBINATION

a. Select the desired Cue Point by pressing [**NEXT CUE**], [**LAST CUE**] or by manually entering the Cue Point using the numeric keypad.

The selected Cue Point number is shown on the bottom of the display.

b. Press [**LOAD**] on the ST400.

The ST400 will automatically load the learned clips on the learned VTRs.
Cue the clips to the learned IN time, then set the learned GANG mode.

4. RECUE CLIP

a. Press [**RECUE**]. If an IN Point is marked (the IN indicator is on), the clip will RECUE to the IN Point.

If the IN point is not marked, the clip will RECUE to the start of the clip.

b. Press [**CUE OUT**] to cue to the marked OUT point.

5. CLEAR CUE POINTS

a. Select the cue point to be cleared using [**NEXT CUE**], [**LAST CUE**], or manually entering the cue point number.

b. Press [**SHIFT**] + [**LEARN**].
The [**CLEAR**] softkey will be displayed on the bottom of the display.

c. Press the [**CLEAR**] softkey to clear the cue point. The cue point will be cleared and the display will return to the normal screen.
OR

Press [**ESC**] to escape without clearing.

6. PLAY CLIP SEGMENT

a. Set an IN Point and OUT Point.
Jog/Shuttle to the desired IN point. Press [**IN**].
Jog/Shuttle to the desired OUT point. Press [**OUT**].
OR

Press [**SHIFT**] + [**IN**]. Manually enter the IN time on the numeric keypad. Press [**ENTER**].

Press [**SHIFT**] +[**OUT**]. Manually enter the OUT time on the numeric keypad. Press [**ENTER**].

b. Press [**RECUE**]. The clip will cue to the IN point.

c. Press [**PLAY**]. The clip will play from its current time to the OUT point, then stop.

Advanced Features . . .

7. CREATE A CLIP

a. Press [**CLIP LIST**].

b. Press [**CREATE**].

c. Manually enter an ID with a maximum of 15 characters from the ST400 numeric keypad.
OR

Manually enter an ID with a maximum of 15 characters from a PC keyboard.

d. Press [**LOAD**]. The clip will be created and loaded.

8. CREATE CUE POINT LABELS

Use LABELS mode to assign meaningful names to cue points. LABELS provides a faster and easier method to select cue points.

On the ST400 –

a. Select cue point to label.

b. Press the [**LABEL**] key.

c. Manually enter a label, up to 8 characters in length, using the numeric keypad, or PC keyboard.

d. Press the [**ENTER**] to assign the entered label to the selected cue point.
OR

[**ENTER**] on the PC keyboard.
OR

[**NEXT CUE**] or [**LAST CUE**].

NOTE: Labels are saved in non-volatile memory in the ST400. They are not saved in the video server.

Reference . . .

9. SETUP MENU

Press [**MENU**]. The MENU indicator will turn on.
The display will show the following parameters with their current settings.

Turn the wheel to select a menu option.
Press the [**CHANGE**] softkey to modify the current setting.

Press the [**EXIT**] softkey to exit the Setup Menu.

PARAMETER	**DESCRIPTION**
WIND MODE	Press Softkey to select: HOLD (fast wind is maintained only while key is depressed). **OR** LATCH (fast wind is maintained after key is released). Set the fast wind speed (3.9 to 23.7) by pressing the [**SPD**] softkey.
RECORD MODE	Press [**MENU**] to select the desired record mode: Lockout, Assemble, Crash (Full) or Insert. Only in INSERT mode: Press the associated Softkey (located below the display) to toggle Video(V), Audio1(A1), Audio2(A2), Audio3(A3) on/off, Audio4 (A4) on/off.
SLOMO	Press the [**TBAR**] (or [**WHEEL**]) softkey to select the T-bar or wheel for slomo. **For T-bar:** The T-bar has a speed range of 0 → 2x with a detent at 1x play speed **OR** a range of 0 → 1x (detent at 1x play speed). Press [**SPD-RNG**] softkey to toggle between SLOMO speed ranges: 0 → 1x **OR** 0 → 2x. Press [**BACK**] softkey to return to SLOMO MENU. Press [**ESC**] to exit **OR** turn the Wheel to select another item. **For Wheel:** Press the [**PRSET**] softkey to toggle between UPDATE and STATIC modes. UPDATE- When exiting SLOMO mode, the last used speed is saved in the Preset Speed register. STATIC- The Preset Speed register is NOT updated when exiting SLOMO mode. It is only changed by [**SHIFT**] + [**SLOMO**] (PRESET SLOMO). Press [**SPD-RNG**] softkey to toggle between SLOMO speed ranges: 0 → 2x **OR** -1 → 2x.

SYNC	Select the appropriate softkey to enable or disable the Reference Video input. [**ON**] [**OFF**]
RECORD KEY	Select single button or 2-button record: RECORD = [**REC**] Only **OR** RECORD = [**REC**] + [**PLAY**]
RECALL MODE	Press [**NORMAL**] or [**REDIR**] (redirect). NORMAL- The cue point will load on the learned VTR. REDIR- When one and only one clip is learned into a Cue Point, the Clip will be REDIRECTED to load on the currently selected VTR.
PREROLL	Enter Preroll value.
RECORD DELAY	Enter delay value. (Used by CAPTURE function.)
GANG MODE	[**PERM**] Permanent Gang- The GANG can be created and undone only with the [**GANG**] softkey. [**TEMP**] Temporary Gang- Quickly create a GANG by pressing and holding a VTR key, then pressing other VTR keys. Quickly undo the GANG by pressing any VTR key.
STANDARD	Press [**NTSC**] or [**PAL**] to select the video standard for time calculations.
CLEAR MEM	[**DEFAULTS**] [**CLR – BANK**] [**CLR – CUES**] [**BACK**] DEFAULTS Set ST400 to factory defaults. Follow the prompts on the display. Press [**YES**] to continue or press [**NO**] to exit without changing ST400. CLR – BANK Clears all cue points in the selected bank. Follow the prompts on the display. CLR – CUES Clears all cue points in all banks. Follow the prompts on the display. BACK Return to prior menu item.
PROTOCOL	Select [**BVW PROFILE**] or [**BVW**]. [**BVW PROFILE**] Select BVW Profile to allow clip functionality: Load, Create, Recue, View available Clips. [**BVW**] Select BVW to control video server like a VTR. In this mode, the clip must have already been loaded.

10. FUNCTION TABLE

Function	Key Press	Description
CUE TO OUT POINT	[**CUE OUT**]	If OUT point is marked, cue to the OUT point.
FFWD	[**FFWD**]	Press and hold to FFWD. Release key to stop. Set WIND SPEED in MENU.
GO TO ENTERED TIME	[**SHIFT**] + [**RECUE**]	To search, manually enter the desired time on the ST400's numeric keypad. Press [**ENTER**] or [**RECUE**].
GANG SETUP	[**GANG**]	Individually press the VTR keys to be included in the gang. The LED above the key will turn on. Press the VTR key again to remove from gang, the LED above the key will turn off. Press [**ESC**] to exit. Upon exiting, all members of the gang will have their VTR LEDs turned on. The flashing LED shows which VTR is currently selected.
JOG	[**JOG**]	Select JOG mode and enable Wheel.
LAST CUE	[**LAST**]	Step to the previous Cue Point Location.
NEXT CUE	[**NEXT**]	Step to the next Cue Point Location.
PREROLL	[**PREROLL**]	If an IN point is marked, preroll to the IN point using the PREROLL VALUE in the Setup Menu.
RECORD	[**REC**]	Places VTR into the Record mode selected by RECORD MODE in the SETUP MENU. Press [**RECORD**] or [**RECORD**] + [**PLAY**].
REWIND	[**RWD**]	Press and HOLD to rewind. Release key to stop. Set WIND SPEED in MENU.
SHUTTLE	[**SHUTTLE**]	Select SHUTTLE mode and enable Wheel.
SLOMO	[**SLOMO**]	Press [**SLOMO**] to slo-mo the VTR. Turn the Wheel (or move the T-bar, if available) to change the play speed. Press [**SLOMO**] to STILL frame **OR** press any transport key to exit SLOMO.
SLO-MO SPEED PRESET	[**SHIFT**] + [**SLOMO**]	For WHEEL **ONLY**: Press [**SHIFT**] + [**SLOMO**] to preset the slo-mo speed. Turn the Wheel to select desired speed. Press [**ESC**] or any transport key to exit.
STOP	[**STOP**]	Press once to STILL frame VTR. Press again to put VTR into STOP mode.

Function	Key Press	Description
TIME MODE SELECT	[**TIME MODE**]	Press to toggle between Timecode (TC), VITC (VT) or Tape Timer (TM) display modes.
PLAY	[**PLAY**]	If an OUT point is marked, play to the OUT point and stop. If no OUT point is marked, play normally.
PLAY- SIMPLE	[**SHIFT**] + [**PLAY**]	Play normal.
RECUE	[**RECUE**]	If the IN point is marked, cue to the IN point. If IN point is not marked, cue to the beginning of the clip. (Under BVW protocol, no action occurs.)

15. SPECIFICATIONS

Power:	90 VAC to 265 VAC adapter supplied with IEC connector APX Model #AP4108 +5v @ 4A, +12v @ 1.0A, -12V @ 0.6A	
Size:		
Non-Tbar	(H x W x D) 1 3/4 (front) x 3 3/8 (rear) x 11 3/8 x 6 1/2 (8 5/8 high to top of display)	
T-bar	(H x W x D) 1 3/4 (front) x 3 3/8 (rear) x 13 3/4 x 6 1/2 (8 5/8" high to top of display)	
Weight:	10 lbs.	
Rear Panel Connectors:	VTR1, 2, 3, 4, 5, 6	(All DB9F)
	GPI	(DBF25F)
	Power	(DB9M)
	SHOTBOX	(DB9F)
	PBIO	(DB9F)
	Keyboard	(6-pin mini DIN)
	Ref. Video In	(BNC)
	Ground	Threaded stud
Display:	Easy to read, back-lit LCD display	
Jog/Shuttle Wheel:	With mechanical detents	

RS422 SERIAL CONNECTOR
9-Pin D-Type, Female (DB9F)

Pin #				
	1	Frame Ground	6	Receive Common
	2	Receive A ←	7	Receive B ←
	3	Transmit B →	8	Transmit A →
	4	Transmit Common	9	Frame Ground
	5	Spare		

POWER CONNECTOR
9-Pin D-Type, Female (DB9M)

Pin #				
	1	+5v DC	6	+5 VDC
	2	+5v DC	7	Ground
	3	Ground	8	Ground
	4	+12 VDC	9	Ground
	5	–12 VDC		

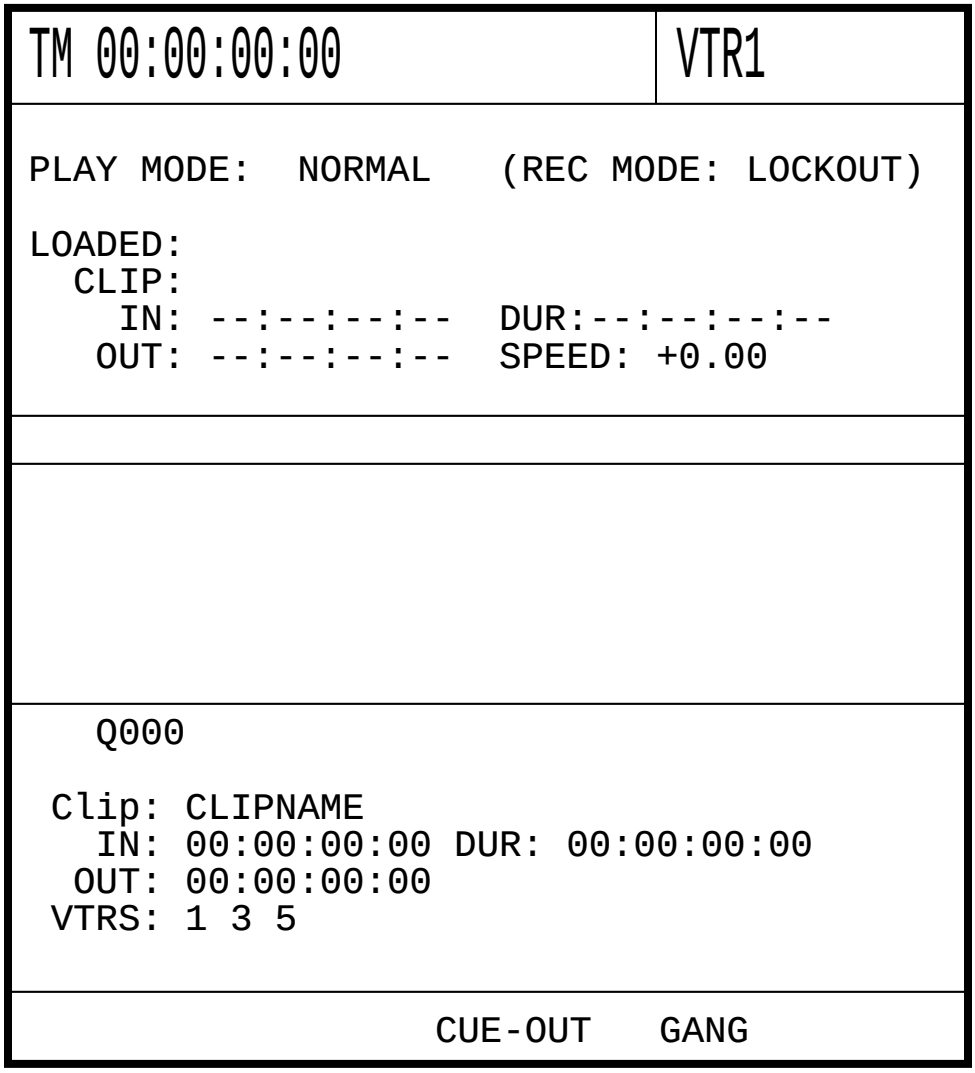
GPI IN/OUT CONNECTOR
26-Pin D-Type, Female (DB26F)

Pin #	Function	Pin #	Function
1	No Connection	14	GPI #5 Last Cue
2	No Connection	15	GPI #6 Recall
3	No Connection	16	No Connection
4	No Connection	17	No Connection
5	No Connection	18	Ground
6	No Connection	19	+5V
7	No Connection	20	+5V
8	No Connection	21	No Connection
9	Ground	22	No Connection
10	GPI #1 Play	23	No Connection
11	GPI #2 Stop	24	No Connection
12	GPI #3 Recue	25	No Connection
13	GPI #4 Next Cue	26	Ground

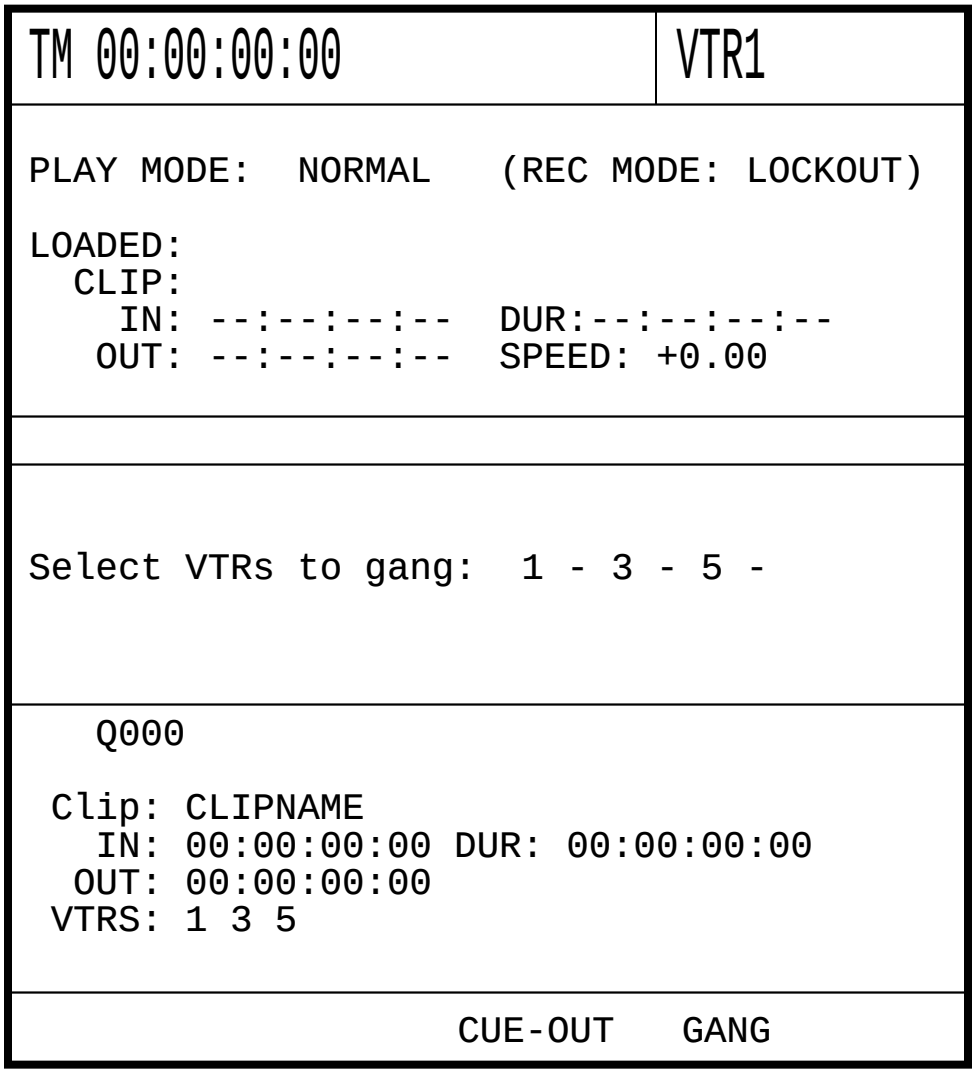
16. SCREEN SHOTS

4040CL & 2044CL Main Screen

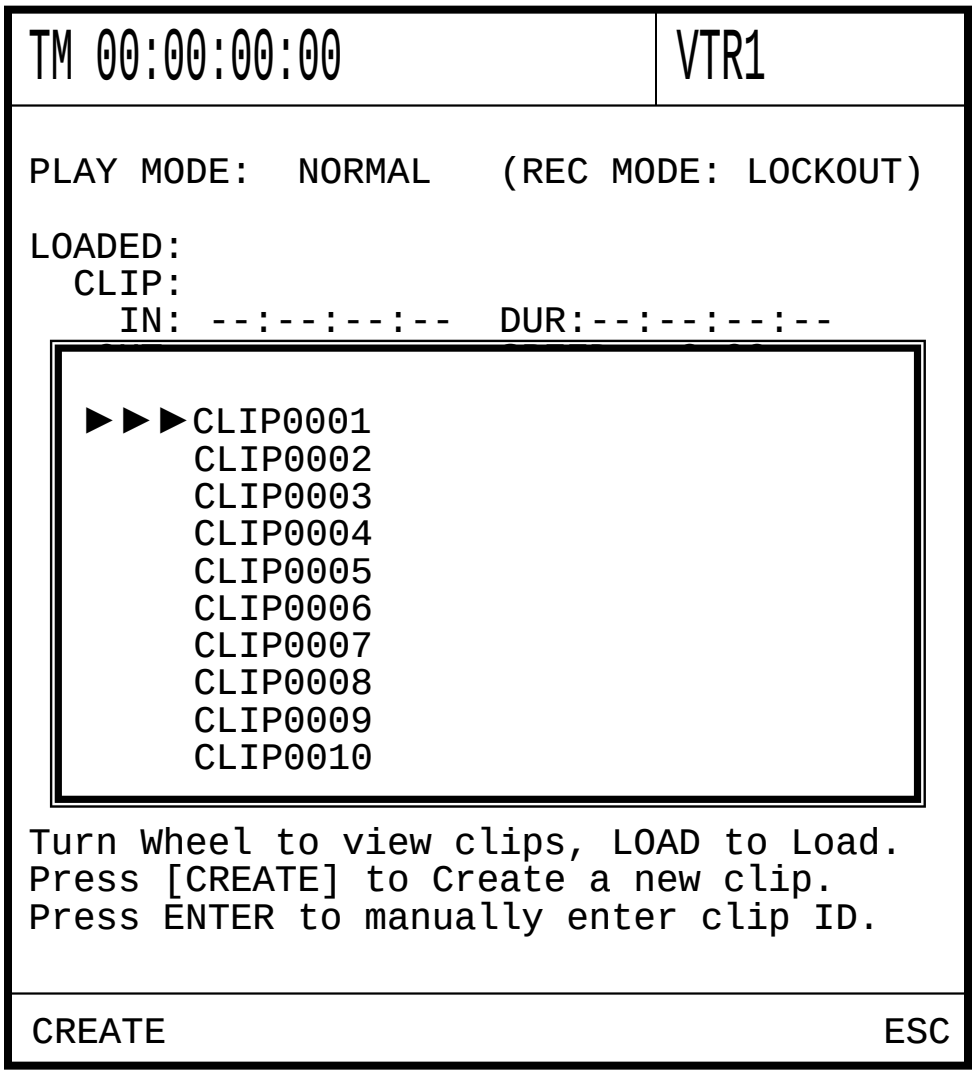
(Not to scale)



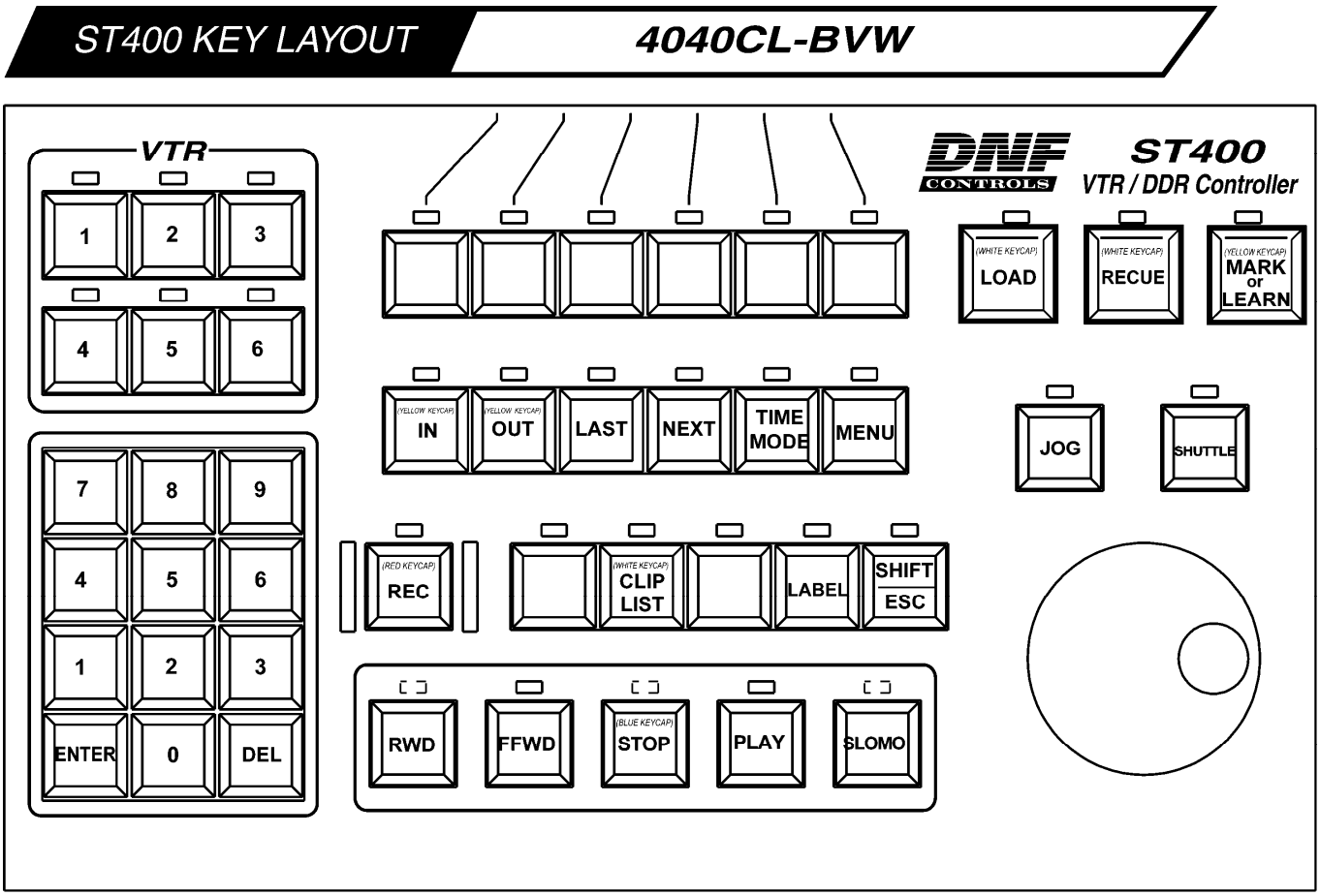
4040CL & 2044CL GANG Screen
(Not to scale)



4040CL & 2044CL Clip List Screen
(Not to scale)



17. KEY LAYOUT



18. DNF CONTROLS LIMITED WARRANTY

DNF Controls warrants its product to be free from defects in material and workmanship for a period of one (1) year from the date of sale to the original purchaser from DNF Controls.

In order to enforce the rights under this warranty, the customer must first contact DNF's Customer Support Department to afford the opportunity of identifying and fixing the problem without sending the unit in for repair. If DNF's Customer Support Department cannot fix the problem, the customer will be issued a Returned Merchandise Authorization number (RMA). The customer will then ship the defective product prepaid to DNF Controls with the RMA number clearly indicated on the customer's shipping document. The merchandise is to be shipped to:

DNF Controls
12843 Foothill Blvd., Suite D
Sylmar, CA 91342
USA

Failure to obtain a proper RMA number prior to returning the product may result in the return not being accepted, or in a charge for the required repair.

DNF Controls, at its option, will repair or replace the defective unit. DNF Controls will return the unit prepaid to the customer. The method of shipment is at the discretion of DNF Controls, principally UPS Ground for shipments within the United States of America. Shipments to international customers will be sent via air. Should a customer require the product to be returned in a more expeditious manner, the return shipment will be billed to their freight account.

This warranty will be considered null and void if accident, misuse, abuse, improper line voltage, fire, water, lightning or other acts of God damaged the product. All repair parts are to be supplied by DNF Controls, either directly or through its authorized dealer network. Similarly, any repair work not performed by either DNF Controls or its authorized dealer may void the warranty.

After the warranty period has expired, DNF Controls offers repair services at prices listed in the DNF Controls Price List. DNF Controls reserves the right to refuse repair of any unit outside the warranty period that is deemed non-repairable.

DNF Controls shall not be liable for direct, indirect, incidental, consequential or other types of damage resulting from the use of the product.

# # #